

REMARKS

Claims 85-112 are pending. Claims 94 and 110 have been amended. No new matter is believed to be added by these amendments. Claim 111 has been canceled. Claims 85, 94, and 103 are independent claims. Claims (86-93), (95-102), and (104-110 and 112) depend from claims 85, 94, and 103, respectively. In the Office Action, claim 110 was objected to for informalities. Claims 94-102 were rejected under 35 USC §112, second paragraph for failing to set forth the subject matter regarded as the invention. Claims 103-112 were rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. Claims 85-87, 89-98, 100-108, and 110-112 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Pat. No. 5,859,972 (hereinafter, “*Subramaniam*”) in view of U.S. Pat. App. Pub. No. 2003/0055683 (hereinafter, “*Gibson*”). Claims 88, 99, and 109 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Subramaniam* in view of *Gibson*, further in view of U.S. Pat. App. Pub. No. 2003/0118599 (hereinafter, “*Adline*”). Applicants respectfully requests allowance of claims 85-110 and 112 in view of the subsequent remarks regarding independent claims 85, 94, and 103.

I. Claim Amendments

Claim 94 has been amended to delete step “j.” No new matter is added by this amendment.

Claim 103 has been amended to clarify that each node comprises a processor and a memory. Support for this amendment can be found in U.S. Pat. App. Pub. No. 2007/0027630 (hereinafter, “the application”) at least in paragraphs 40 and 105. No new matter is added by this amendment.

Claim 110 has been amended to include a period at the end of the claim. No new matter is added by this amendment.

II. Claim Objection

Claim 110 was objected to for informality. Claim 110 has been amended to include a period at the end of the claim. Accordingly, Applicants respectfully request withdrawal of the objection.

III. Rejections Under 35 U.S.C. §112, second paragraph

Claim 94, and claims 95-102 by virtue of dependency upon claim 94, was rejected under 35 U.S.C. §112, second paragraph for failing to particularly point out and distinctly claim the subject matter regarded as the invention. Claim 94 has been amended to delete the repeated limitation found in step “j.” Applicants respectfully request withdrawal of the rejection.

IV. Rejections Under 35 U.S.C. §103(a)

For a *prima facie* case of obviousness, the cited prior art references, when combined, “must teach or suggest all the claim limitations” MPEP § 2143. Thus, if the references do not teach each of the claimed limitations, a finding of obviousness fails. In addition, the Patent Office has the burden under § 103 to establish a *prima facie* case of obviousness, which can be satisfied only by showing some objective teaching in the prior art would lead one to combine the relevant teachings of the references. *See In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir. 1988). As such, an Applicant, to overcome an allegation of obviousness can show that the cited prior art references (when combined) do not teach or suggest all the claim limitations or that there is not an objective teaching in the prior art that would lead one to combine the relevant teachings of the references.

The Supreme Court has reaffirmed the *Graham* factors for determination of obvious under 35 U.S.C. 103(a). *KSR Int'l Co. v. Teleflex, Inc.* (KSR), No 04-1350 (U.S. Apr. 30, 2007). The four factual inquiries under *Graham* require examination of: (1) the scope and contents of the prior art; (2) the differences between the prior art and the claims in issue; (3) the level of ordinary skill in the pertinent art; and (4) the objective evidence of secondary consideration. *Graham v. John Deere (Graham)*, 383 U.S. 1, 17-18, 149 USPQ 459, 467 (1966); see also 35 U.S.C. § 103 (2000). The Court has further recognized that the requirement for a teaching, suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings, which was established by the Court of Customs and Patent Appeals, provides a helpful insight for determining whether the claimed subject matter is obvious under 35 U.S.C. § 103(a). In addition, the Court maintained that any analysis supporting a rejection under 35 U.S.C. § 103(a) should be made explicit, and that it is “important to identify reasons that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements” in the manner claimed, because “inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.” *KSR* at 14, 15.

Where an invention is contended to be obvious based upon a combination of elements across different references, one should be able to identify particular reasons that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements. *See, KSR Int'l Co.*, at 14, 15. This requirement prevents the use of “the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability—the essence of hindsight.”

Ecolochem, Inc. v. So. Cal. Edison Co., 227 F.3d 1361, 1371-72 (Fed. Cir. 2000) (quoting *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999)).

Independent claims 85, 94, and 103 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Subramaniam* in view of *Gibson*. However, *Subramaniam* in view of *Gibson* fails to disclose, teach, or suggest at least the limitations of:

querying **a plurality** of databases with **the set** of biological sequences;
receiving query results from the plurality of databases, wherein the query results
comprise **at least immunohistological data, *in situ* hybridization data,
functional data, expression data, and structural data;**
...
displaying **an executive summary** of the record of one of the set of biological
sequences

as recited in claims 85 and 94. (Emphasis added.)

Similarly, with regard to claim 103, *Subramaniam* in view of *Gibson* fails to disclose, teach, or suggest at least the limitations of:

a target database node ... wherein the query results **comprise at least
immunohistological data, *in situ* hybridization data, functional data,
expression data, and structural data**, further wherein the target database
node is configured to receive, from a user, a request to view a record of
one of the set of biological sequences and display **an executive summary**
of the record of one of the set of biological sequences;
...
a functional node ... configured to periodically query **the plurality** of databases
on the query database node with **the set** of biological sequences from the
target database node and send query results to the target database node

as recited in claim 103 as amended. (Emphasis added.) Applicants therefore respectfully submit that *Subramaniam* in view of *Gibson* does not render obvious Applicants' independent claims 85, 94, and 103.

Subramaniam teaches a method for querying multiple databases with a single query. See, *Subramaniam*, Abstract. *Subramaniam* allows a user to create a single query that is translated into different formats so that the query can be applied to disparate databases. *Subramaniam* describes the "Methods of Operation" beginning at column 8, line 15. A user desiring to search for proteins relevant to "secretory trypsin inhibitor" types the keywords "secretory trypsin inhibitor" into the query builder (See Figure 5A). Since databases to be searched were designed and maintained by different entities, there is inconsistency regarding terminology used in the databases. For example, two databases might have data relevant to a query for "secretory trypsin inhibitor," however, the databases are structured differently. By way of example provided by Applicants, in order to search the first database, the query could be required to request all data records where PROTID="secretory trypsin inhibitor" and the second database could require a query to conform to a format where PROTFUNCTION="secretory trypsin inhibitor". *Subramaniam* provides an example where one database requires the query to refer to "compounds" and another database requires the query to refer to "proteins." Thus, *Subramaniam* allows for a single keyword search to be applied to multiple databases based on *a priori* knowledge of the structure and query requirements of each database. *Subramaniam* describes various data sources that can be queried starting in column 6, ln 63. After performing the query, *Subramaniam* describes presenting the user with the results of the search, "which shows **all** objects that were found from both databases from the search." (Emphasis added). See, *Subramaniam*, col. 8, ln. 37-40.

Thus, *Subramaniam* teaches keyword based queries and does not teach ***sequence set*** based queries to ***multiple databases*** as presently claimed. *Subramaniam* does teach that the system could be used with applications such as NCBI BLAST, which rely on sequence based queries, but the teaching in *Subramaniam* does not apply to building a query from multiple sequences for multiple databases. The teaching of CLUSTALW, a multiple sequence alignment application, only teaches that multiple sequences are sent to a ***single*** database. Furthermore, there is no teaching anywhere in *Subramaniam* of query results that comprise immunohistological data, *in situ* hybridization data, functional data, expression data, ***and*** structural data. Finally, *Subramaniam* does not teach the presentation of an “executive summary” of retrieved data to a user. Instead, *Subramaniam* presents the user with “Collective Results” which shows “all objects ... found...” See, *Subramaniam*, col. 8, ln. 37-40.

Gibson does not remedy the deficiencies of *Subramaniam*. *Gibson* merely teaches periodic updates of databases. See, *Gibson*, para. 25. *Gibson* does not teach a multiple sequence query to multiple databases; query results that comprise immunohistological data, *in situ* hybridization data, functional data, expression data, ***and*** structural data; or presentation of an “executive summary” of retrieved data to a user, as presently claimed.

Accordingly, Applicants earnestly request reconsideration, withdrawal of the rejection, and allowance of claims 85-110 and 112.

V. Conclusion

The teachings of *Subramaniam* and *Gibson*, alone, or in any combination do not anticipate or render obvious any of the pending claims. As the Court noted in *In re Fine*, “dependent claims are nonobvious under section 103 if the independent claims from which they depend are nonobvious.” 5 U.S.P.Q.2d 1569, 1600 (Fed. Cir. 1988). Since the Applicants

respectfully assert that all the pending independent claims are allowable, all the pending dependent claims are also allowable. Thus, Applicants respectfully request allowance of all pending claims in view of the previous remarks and amendments. The Examiner is invited and encouraged to contact directly the undersigned if such contact may enhance the efficient prosecution of this application to issue.

Under 37 C.F.R. §1.114, a Request for Continued Examination must be accompanied with a submission. This reply satisfies the requirement of a submission because it is fully responsive.

A fee of \$650.00 for a two-month extension of time filing fee and a Request for Continued Examination fee for a small entity is enclosed. The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 14-0629.

Respectfully submitted,

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